# Lake Manitou Sediment Removal Plan

Fulton County, Indiana

July 17, 2007

Prepared for:

**Lake Manitou Association**
1618 Bessmore Park Road
Rochester, Indiana 46975

Prepared by:

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**LAKE MANITOU SEDIMENT REMOVAL PLAN –FINAL REPORT**
**FULTON COUNTY, INDIANA**

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**FULTON COUNTY, INDIANA**

## 1.0 PROJECT DESCRIPTION AND PURPOSE

The Lake Manitou Sediment Removal Plan was completed in concert with the Lake Manitou Property Owners Association (Association). The plan is designed to improve the aesthetics and usability of Lake Manitou, which is located along the southern edge of Rochester in Fulton County, Indiana (Figure 1). The Association identified six areas for sediment removal and three potential dredge material disposal basin locations (Figure 2).

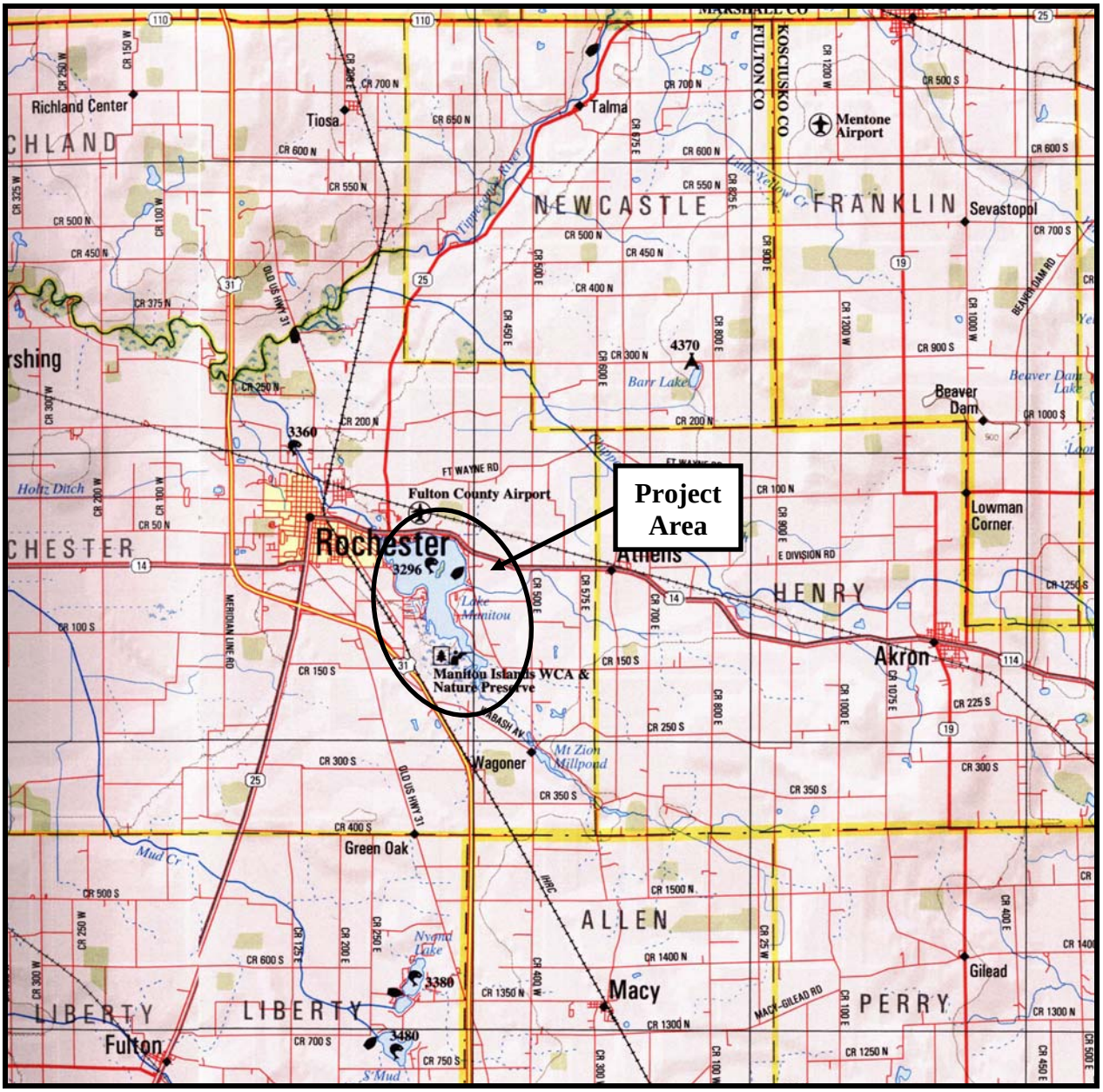



**Figure 1. General project location map.**

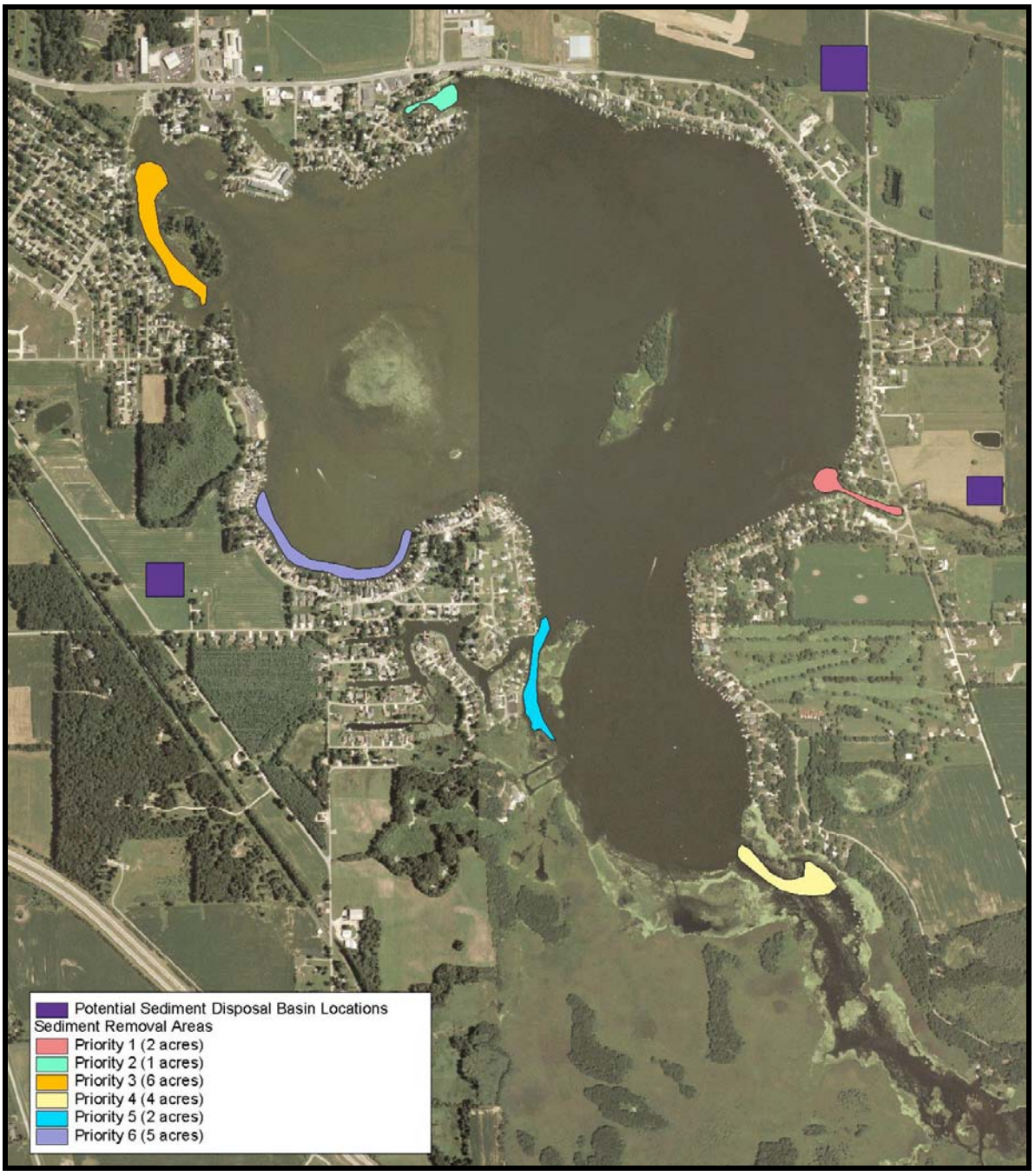



**Figure 2. Prioritized sediment removal locations.**

## 2.0 DESIGN RATIONALE

The Lake Manitou Association is planning to hydraulically dredge accumulated sediment from six locations within Lake Manitou. The areas are prioritized as areas one through six. Table 1 details the area, depth, and total volume of sediment to be removed from each location. Appendix A contains representative photographs of the lake and dredging locations. Sediment removal estimates were generated from sediment depth mapping completed by R&R Visual in the fall of 2004 and from field estimates conducted by JFNew on November 9, 2004. R&R Visual's sediment depth maps are included in Appendix B. Sediment depths indicate the total

depth of organic material and marl and reflect the original lake bottom prior to large scale anthropogenic changes to the lake. Dredging volumes were calculated based on measured sediment depths and estimated dredging areas.

**Table 1. Estimated Area, depth, and volume of sediment removal from Lake Manitou.**

| Priority Area | Dredging Area (acres) | Dredging Depth (feet) | Dredging Volume (cubic yards) |
|---|---|---|---|
| 1 | 2 | 2.5 | 8,000 |
| 2 | 1 | 3.0 | 5,000 |
| 3 | 6 | 1.5 | 14,500 |
| 4 | 4 | 2.5 | 16,000 |
| 5 | 2 | 2.5 | 8,000 |
| 6 | 5 | 2.5 | 20,000 |
| Total | 15 | -- | 71,500 |

Sediment depths, as determined by R&R Visual, were field checked using a 2-inch PVC pipe to determine the depth of accumulated organic material or silt within each of the target areas. During this inspection, individuals measured water depth, accumulated sediment depth, and the location of the original lake bottom. Results of this analysis are included in Appendix C. Additionally, spot elevation maps of each of the proposed dredging locations are included in Appendix D.

In concert with field-checking, sediment samples were inspected for sediment type. At this time, attempts to determine the probable origin of sediment material were also made. All sediment to be removed from the lake is organic material, such as remnant plant or woody debris, or silt. Exact locations of silt and organic material origin could not be determined. It is estimated that silt originated from bare ground areas, such as agricultural fields or construction sites, within the Lake Manitou watershed, while organic material is composed of dead and decaying in-lake and adjacent wetland plant material.

The Association has actively attempted to reduce the flow of sediment from the watershed to Lake Manitou. In 1995, a series of sediment traps and baffles were installed along Graham Ditch. (Appendix A contains photographs of this series taken during the summer of 2004.) Over the past 10 years, the sediment traps have been filled with organic material and silt.

These traps will be cleaned during the next year to facilitate their usefulness. Additionally, the Lake Association and the City of Rochester applied for and received funding to complete a watershed management plan through the Section 205(j) program. The management planning process began during the fall of 2005 and was continuing when this report was completed in July 2007.

## 3.0 DESIGN AND CONSTRUCTION SPECIFICS

### 3.1 Public Input and Landowner Agreements

The Association identified all potential sediment removal areas and prioritized sediment removal locations. The Association held one public meeting on November 18, 2004 to gather input from

lake residents. Approximately 150 residents adjacent to the priority dredging areas were contracted through the permitting and public notice process. Additionally, maps detailing potential sediment removal locations were placed in public restaurants along the lakeshore and the local newspaper published an article on the potential dredging locations in December 2004. This enabled individuals who missed either public meeting to provide project input. The Association contacted individuals owning dredge spoil basin locations and obtained permission for the use of their land for dredge spoil dewatering. Copies of signed landowner agreements are included in Appendix E.

The final dredging limits were based on feedback during meetings, permitting, and funding limitations. Four areas were hydraulically dredged into three separate temporary dewatering basins (Figure 3). Dredging depths varies among sites and within a particular site. Dredging volume estimates are as follows. Site 1 in the small bay at the north end of the lake included two acres of dredging resulting in approximately 10,000 cubic yards being removed. Site 2 in the natural channel at the northwest corner of the lake included 2 acres of dredging and resulted in approximately 10,000 cubic yards being removed Site 3 at the outlet of Graham Ditch included two acres of dredging, with approximately 25,000 cubic yards being removed. Site 4 at the south end of the lake included approximately five acres of dredging resulting in the removal of approximately 44,000 cubic yards of sediment.

### 3.2 Sediment Characterization

Sediment samples were collected from three locations within the lake on November 9, 2004. (Specific sites where samples were collected for characterization and analysis are included in Appendix C.) Samples were collected using a 2-inch PVC pipe and placed in plastic containers. Samples were stored on ice and transported to EIS Analytical Laboratories in South Bend, Indiana for analysis.

Analytical results and Indiana Department of Environmental Management (IDEM) ceiling concentrations for the land application of solids are listed in Table 2. All of the samples collected from the three locations within Lake Manitou are below the IDEM ceiling concentration for the application of solid materials to adjacent land. Total arsenic, cadmium, mercury, nickel, selenium, and silver were all below the laboratory detection levels. Furthermore, chromium, copper, lead, and zinc concentrations were below the median concentration measured in Illinois lakes (Kelly and Hite, 1981).

**Table 2. Analytical results from sediment samples collected November 9, 2004.**

| Parameter | Ceiling Concentration Limit | Rain Creek outlet | Graham Ditch outlet | North Bay |
|---|---|---|---|---|
| Total Arsenic | 75 mg/kg | 10 mg/kg* | 10 mg/kg* | 10 mg/kg* |
| Total Barium | -- | 33.9 mg/kg | 58.2 mg/kg | 31.6 mg/kg |
| Total Cadmium | 85 mg/kg | 1 mg/kg* | 1 mg/kg* | 1 mg/kg* |
| Total Chromium | -- | 3.2 mg/kg | 4.6 mg/kg | 4.7 mg/kg |
| Total Copper | 4,300 mg/kg | 4.3 mg/kg | 4.2 mg/kg | 5.0 mg/kg |
| Total Lead | 840 mg/kg | 5.4 mg/kg | 5.7 mg/kg | 6.1 mg/kg |
| Total Mercury | 57 mg/kg | 0.1 mg/kg* | 0.1 mg/kg* | 0.1 mg/kg* |
| Total Nickel | 420 mg/kg | 4 mg/kg* | 4 mg/kg* | 4 mg/kg* |

| | | | | |
|---|---|---|---|---|
| Total Selenium | 100 mg/kg | 10 mg/kg* | 10 mg/kg* | 10 mg/kg* |
| Total Silver | -- | 1 mg/kg* | 1 mg/kg* | 1 mg/kg* |
| Total Zinc | 7,500 mg/kg | 16.1 mg/kg | 17.4 mg/kg | 7.5 mg/kg |
| Total Solids | -- | 15.2% | 26.1% | 39.1% |
| Ammonia-Nitrogen | -- | 18 mg/L | 1.2 mg/L | 1.4 mg/L |

*Method Detection Level

### 3.3 Permitting

A Lake Preservation Permit was required from the IDNR since work occurred "lakeward of the lake's legal or average shoreline". This permit was applied for in January 2005 and obtained in April 2005. A Clean Water Act Section 401 Water Quality Certification from the Indiana Department of Environmental Management (IDEM) and a Section 404 permit from the U.S. Army Corps of Engineers (Corps) were required because water from the dredged material was returned from the sediment dewatering basins to the lake. Applications were submitted in early January 2005 and permits were obtained in February 2005 (Appendix F). A modification was requested in September 2006 for the additional basins and was granted in October 2006.

### 3.4 Hydraulic Dredging

The original plans called for hydraulic dredging from six locations within Lake Manitou. Ultimately only four areas were dredged as discussed above. Dredging began after the sediment dewatering basin had been constructed and silt fence and dredge material (inlet) and return water (outlet) pipes had been installed. Turbidity curtains were proposed and specified in the contracts to filter return water; however neither contractor bothered to install them. The Association contracted with JFNew to administer the bidding process, monitor project progress, ensure timely completion of dredging, and monitor post-dredging contours.

### 3.5 Dewatering Basins

Three dewatering basins were ultimately constructed to handle the volume of spoils generated from dredging and maintain a maximum pumping distance of less then 5,000 feet (Figure 3). None of the three basins were located in the areas proposed in the original plan. Negotiations with the individual landowners continued throughout the project even after the signing of the original agreements due to misunderstandings or lack of good site information up front. The basins all had a minimum depth of six feet. Temporary seed and silt fences or an erosion control equivalents were specified by contract for the dewatering basins to reduce erosion. The earthen berms had minimum slopes of 1.5(H):1(V) on both faces with 6 to 8 foot top widths.

The spoils basins were allowed to dry for two months after following completion of dredging before attempting to grade the sites to match the surrounding landscape. Several weeks were needed to level the basins. The basin sites were reseeded with permanent grasses.

## 4.0 BIDDING REQUIREMENTS, FORMS, AND INFORMATION

As proposed in the Draft Design Report the Association contracted with JFNew to administer the bidding process, monitor project progress, and ensure timely completion of dredging. The following describes how the bid process was completed. The dredging work for Phase 1 was divided and bid out separately. Part 1 included silt fence (or equivalent) installation and

dewatering basin construction and removal. Part 2 included dewatering pipe and sediment pumping pipe installation and removal, turbidity curtain installation and removal, and hydraulic dredging. An invitation to bidders was issued via a letter similar to the example included in Appendix G. The invitation included specifics regarding the dredging locations and volumes, sediment disposal basin locations and construction details, project specifications, and bid return deadlines. Design specifics, access to the project site, and basin location modifications were discussed at the pre-bid meeting. Phase 2 work was bid out as a single lump sum contract for both dredging and sediment basin construction to prevent some of the problems encountered in Phase 1.

## 5.0 CONSTRUCTION SCHEDULE

The grant allocation, recreational use of the lake, and contractor scheduling determined the project timing. The dredging work was scheduled to begin in September 2005 upon completion of the first sediment basin. The first sediment basin was completed for Phase 1 in September 2005; however, the dredger did not begin operations until late November 2005 and worked through the winter to complete Priority Areas 1 and 2 before pulling his equipment in April 2006. The second basin was constructed in December 2005. The same dredger returned in December 2007 and remained on the lake into late April 2007 to complete Priority Area 3. Phase 2 (Priority Area 4) was proposed to begin in October 2006 but due to delays with the construction of the sediment basin (due to landowner concerns) dredging was delayed until March 2007 and completed in April 2007. The basins were torn down and leveled in June and early July 2007.

## 6.0 COST ESTIMATES

Cost estimates were developed from excavator and dredge contractor estimates. Cost estimates are listed in Table 3. Each of the dredging estimates includes mobilization/demobilization costs for completing each dredge area separately. Additionally, if dredge material needs to be pumped more than 4,000 feet from the dredging location an additional cost of 30% should be added to cost estimates listed in Table 3 (Jeff Krevda, personal communication). Costs could be reduced by grouping dredging sites together and/or constructing one sediment disposal basin for multiple dredging areas. Altogether, dredging the six locations in Lake Manitou and constructing six separate sediment disposal basins within 4,000 feet of the dredging sites was estimated to cost $776,682.

**Table 3. Cost estimates for sediment removal at Lake Manitou.**

| Dredging Area | Dredging Cost Estimate | Sediment Disposal Basin Cost Estimate | Construction Oversight (20%) | Total Cost |
|---|---|---|---|---|
| Priority Area 1 | $52,600 | $29,250 | $16,370 | $98,220 |
| Priority Area 2 | $30,650 | $29,250 | $11,980 | $71,880 |
| Priority Area 3 | $126,160 | $29,250 | $31,082 | $186,492 |
| Priority Area 4 | $102,930 | $29,250 | $26,436 | $158,616 |
| Priority Area 5 | $52,595 | $29,250 | $16,369 | $98,214 |
| Priority Area 6 | $106,800 | $29,250 | $27,210 | $163,260 |
| **Total Cost** | **$468,735** | **$175,500** | **$129,440** | **$776,682** |

## 7.0 SUMMARY

The project to dredge areas of accumulated sediment within select areas of Lake Manitou began with the hiring of JFNew in the fall of 2004. JFNew utilized whole lake mapping of sediments by R& R Visual of Rochester and input from lake residents to narrow the scope of the work to six areas around the lake. These six areas included the mouths of the two major drainages: Graham Ditch (also known as White Ditch) on the east, and Rain Creek at the south end of the lake. The other four areas included a bay at the north end of the lake, a natural channel on the northwest side of the lake, a naturally shallow bay in the southwest corner of the main lake, and a natural channel at the outlet of an artificial channel section in the southeast corner of the lake. Permit applications were submitted in January of 2005 to the Indiana Department of Natural Resources – Division of Water, The US Army Corps of Engineers, and the Indiana Department of Environmental Management. All required permits were received by May 31, 2005 to dredge five of the original six areas selected. JFNew was paid $9,600 to develop the dredge plan and obtain the permits.

The Association applied for a LARE grant in January 2005 requesting $100,000 to dredge two of the five permitted areas. The LARE program awarded $127,575 to the Lake Manitou Association in July 2005 to allow dredging in three areas the first year including the Graham Ditch outlet, the bay on the north end of the lake and the natural channel along the northeast shoreline that inhibited lake access from the public ramp. The Lake Manitou Association selected Dredging Technologies, Inc. to perform the dredging of the three areas in the fall of 2005 for a lump sum of $113,368. EFM Excavating was selected to construct one of the two basins required for the three dredging sites for a lump sum of $24,500 and Morris Excavating was selected to construct the second basin for a lump sum of $19,800. The Lake Manitou Association paid $9,950 to Direct Line communications to bore a 14-inch pipe under State Road 14 for access to the second dredge spoil site. In addition, the Lake Manitou Association contracted with JFNew to administer the project and perform inspections for $12,000. The dredging of six acres of lake bottom in three separate areas and the construction and demolition of two sediment disposal basins was completed under these contracts in April of 2007 for a total cost of $177,218.00 including the cost of the dredge plan.

The Lake Manitou Association applied for an additional LARE grant in January of 2006 and was awarded $100,000 to complete their dredging project. The final area selected for dredging was approximately five acres at the south end of the lake near the outlet of Rain Creek. The contract for dredging and construction of a third sediment spoils basin was awarded to Tennant's Industrial Dredging in August of 2006 for $125,000. JFNew was contracted to administer the project and perform construction inspections on an hourly basis and has invoiced the Lake Manitou Association approximately $10,000 prior to this report. There were additional expenses paid by the Lake Manitou Association to Morris Excavating to modify the basin at the demand of the property owner and to clean up and cap the area of the pipe under State Road 14 from the first dredging phase. The dredging of five acres of lake bottom in phase two, along with the construction of the associated basin and incidental expenses was completed for a total cost of approximately $133,000 including this final report.

# APPENDIX A

# FINAL DREDGE AND DREDGE DISPOSAL SITES

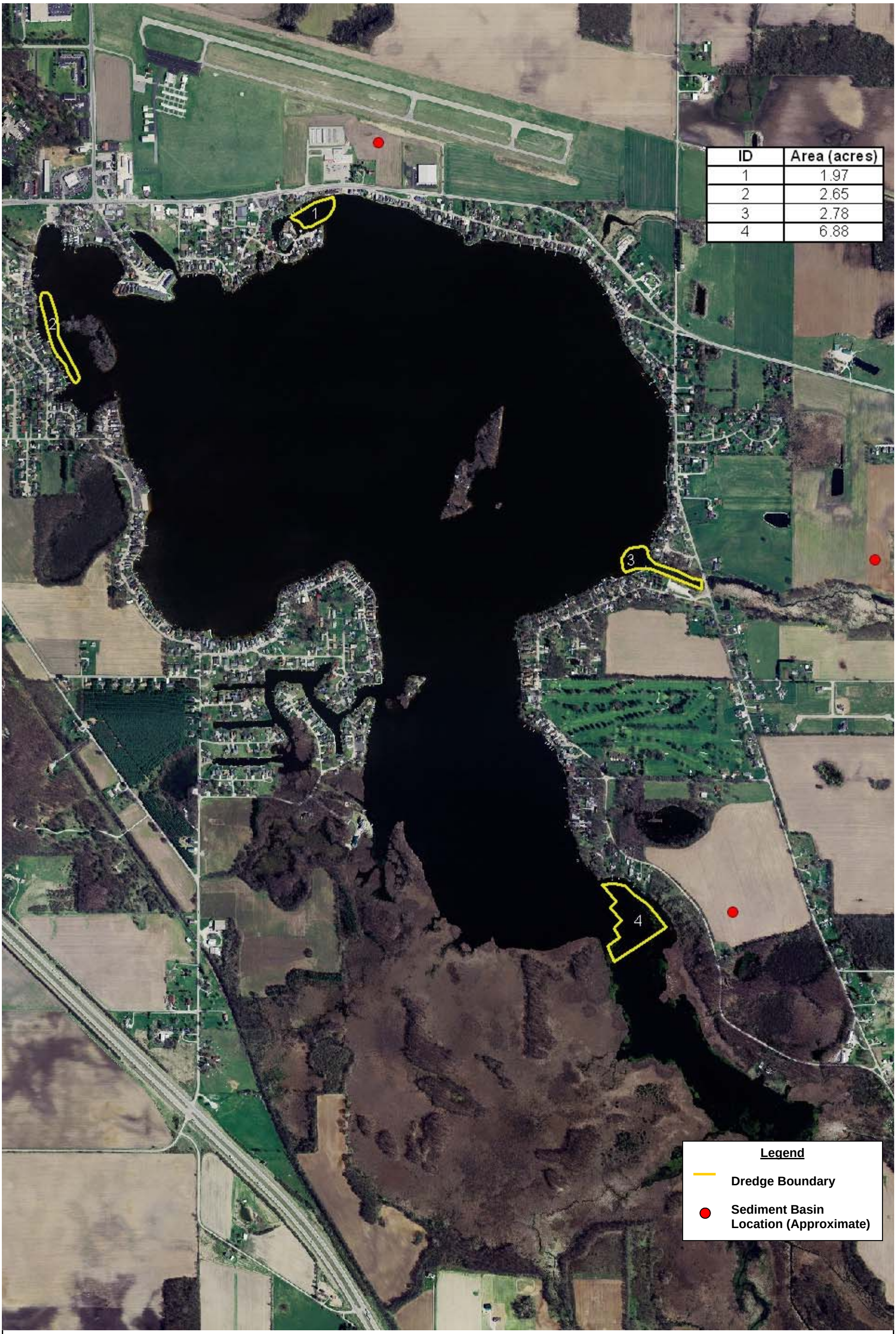



**Figure 3: Hydraulic Dredging Locations and Sediment Spoils Basins**
**Lake Manitou Dredging Project 2005-2007**
**Fulton County, Indiana**

N

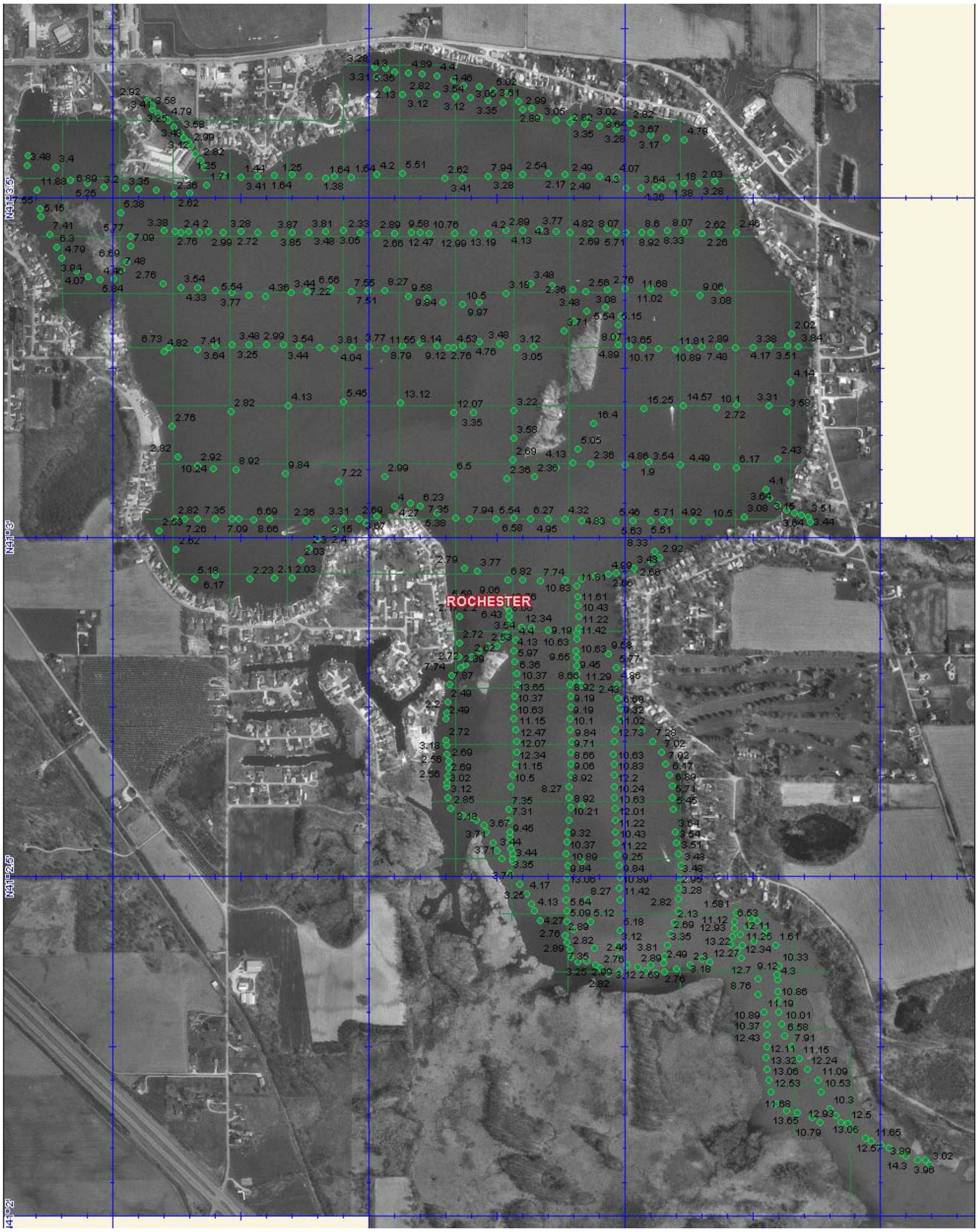
**Scale: 1” = 1000’**

JFNew # 03-12-46

JFNew
708 Roosevelt Road, Walkerton, IN 46574
Phone 574-586-3400 / Fax 574-586-3446
www.jfnew.com

# APPENDIX B

# SEDIMENT DEPTHS AS MEASURED BY R&R VISUAL




**Appendix B: Sediment Depths as Measured by R&R Visual**
**Lake Manitou**
**Fulton County, Indiana**

N

**Scale: 1" = approximately 915'**

JFNew # 03-12-46

JFNew
708 Roosevelt Road, Walkerton, IN 46574
Phone 574-586-3400 / Fax 574-586-3446
www.jfnew.com

# APPENDIX C

# SEDIMENT CHARACTERIZATION AND SAMPLING RESULTS

# REPORT OF ANALYSIS

Ms. Marianne Giolitto
J.F. New & Associates
708 Roosevelt Road
Walkerton, IN 46574
Tel No: 574-586-3400
Fax No: 574-586-3446
PO No:
**Project Name: Lake Manitou**

| | |
|---|---|
| Report Date: | 12/6/04 |
| **EIS Order No:** | **041100093** |
| EIS Sample No: | 100263 |
| EIS Project No: | 2325-1000-04 |
| **Client Sample ID:** | **Rain Creek** |
| Date Collected: | 11/9/04 |
| Date Received: | 11/10/04 |
| Collected By: | M. Giolitto |

This report presents results of analysis for your sample(s) received under our Order No above. This Number is to be used in all inquiries concerning this report. The EIS Sample No above, as well as your Sample ID, refer to the first sample in a multi-sample submission

DEFINITIONS:

MDL = Method Detection Limit normally achieved in the absence of interferences or other matrix difficulties.
RDL = Reporting Detection Limit achieved in your sample. If numerically greater than the MDL, dilutions were required in order to perform the analysis. If numerically less than the MDL, alternate techniques were employed.
nd = Not Detected at the RDL value. If present, result is less than this value.
< = Not Detected at the numerical value shown. If present, result is less than this value.
[ ] = Result is Estimated due to matrix interferences or calibration curve exceedence.

CHAIN-OF-CUSTODY is enclosed if received with your sample submission.

DRINKING WATER CERTIFICATIONS: Chemistry = C-71-02 Bacteriology = M-76-5

QUALITY ASSURANCE OFFICER

LABORATORY DIRECTOR

The data in this report has been reviewed and complies with EIS Quality Control unless specifically addressed above.

# SAMPLE RESULTS

**CLIENT SAMPLE ID:** Rain Creek
**CLIENT PROJECT:** Lake Manitou
**SAMPLE TYPE:** Soil/Sludge/Solid
**Date Collected:** 11/9/04

**Report Date:** 12/6/04
**EIS Sample No:** 100263
**EIS Order No:** 041100093
**Date Received:** 11/10/04

| Parameter | Results | Units | RDL | MDL | Test Date | Analyst ID | Method |
|---|---|---|---|---|---|---|---|
| Digest Mercury | Complete | | | | 11/15/04 | E09 | 7471 |
| Digest ICP Metals | Complete | | | | 11/11/04 | E09 | 3050 B |
| Elutriate Preparation | Complete | | | | 11/10/04 | E21 | EPA/Corps |
| Nitrogen(Ammonia) | 18 | mg/L | 0.1 | 0.05 | 11/19/04 | E03 | 350.1 |
| Solids,Total | 15.2 | % | 0.1 | 0.1 | 11/12/04 | E25 | 160.3 |
| **METALS** | | | | | | | |
| Arsenic,Total | <10 | mg/kg(wet) | 10 | 10 | 11/12/04 | E09 | 6010 |
| Barium,Total | 33.9 | mg/kg(wet) | 1 | 1 | 11/12/04 | E09 | 6010 |
| Cadmium,Total | <1 | mg/kg(wet) | 1 | 1 | 11/12/04 | E09 | 6010 |
| Chromium,Total | 3.2 | mg/kg(wet) | 2 | 2 | 11/12/04 | E09 | 6010 |
| Copper,Total | 4.3 | mg/kg(wet) | 1 | 1 | 11/12/04 | E09 | 6010 |
| Lead,Total | 5.4 | mg/kg(wet) | 5 | 5 | 11/12/04 | E09 | 6010 |
| Mercury,Total | <0.1 | mg/kg(wet) | 0.1 | 0.2 | 11/16/04 | E09 | 7471 |
| Nickel,Total | <4 | mg/kg(wet) | 4 | 4 | 11/12/04 | E09 | 6010 |
| Selenium,Total | <10 | mg/kg(wet) | 10 | 10 | 11/12/04 | E09 | 6010 |
| Silver,Total | <1 | mg/kg(wet) | 1 | 1 | 11/12/04 | E09 | 6010 |
| Zinc,Total | 16.1 | mg/kg(wet) | 1 | 1 | 11/12/04 | E09 | 6010 |

# SAMPLE RESULTS

**CLIENT SAMPLE ID:** Graham Ditch
**CLIENT PROJECT:** Lake Manitou
**SAMPLE TYPE:** Soil/Sludge/Solid
**Date Collected:** 11/9/04

**Report Date:** 12/6/04
**EIS Sample No:** 100264
**EIS Order No:** 041100093
**Date Received:** 11/10/04

| Parameter | Results | Units | RDL | MDL | Test Date | Analyst ID | Method |
|---|---|---|---|---|---|---|---|
| Digest Mercury | Complete | | | | 11/15/04 | E09 | 7471 |
| Digest ICP Metals | Complete | | | | 11/11/04 | E09 | 3050 B |
| Elutriate Preparation | Complete | | | | 11/10/04 | E21 | EPA/Corps |
| Nitrogen(Ammonia) | 1.2 | mg/L | 0.1 | 0.05 | 11/19/04 | E03 | 350.1 |
| Solids,Total | 26.1 | % | 0.1 | 0.1 | 11/12/04 | E25 | 160.3 |
| **METALS** | | | | | | | |
| Arsenic,Total | <10 | mg/kg(wet) | 10 | 10 | 11/12/04 | E09 | 6010 |
| Barium,Total | 58.2 | mg/kg(wet) | 1 | 1 | 11/12/04 | E09 | 6010 |
| Cadmium,Total | <1 | mg/kg(wet) | 1 | 1 | 11/12/04 | E09 | 6010 |
| Chromium,Total | 4.6 | mg/kg(wet) | 2 | 2 | 11/12/04 | E09 | 6010 |
| Copper,Total | 4.2 | mg/kg(wet) | 1 | 1 | 11/12/04 | E09 | 6010 |
| Lead,Total | 5.7 | mg/kg(wet) | 5 | 5 | 11/12/04 | E09 | 6010 |
| Mercury,Total | <0.1 | mg/kg(wet) | 0.1 | 0.2 | 11/16/04 | E09 | 7471 |
| Nickel,Total | <4 | mg/kg(wet) | 4 | 4 | 11/12/04 | E09 | 6010 |
| Selenium,Total | <10 | mg/kg(wet) | 10 | 10 | 11/12/04 | E09 | 6010 |
| Silver,Total | <1 | mg/kg(wet) | 1 | 1 | 11/12/04 | E09 | 6010 |
| Zinc,Total | 17.4 | mg/kg(wet) | 1 | 1 | 11/12/04 | E09 | 6010 |

# SAMPLE RESULTS

**CLIENT SAMPLE ID:** North Bay
**CLIENT PROJECT:** Lake Manitou
**SAMPLE TYPE:** Soil/Sludge/Solid
**Date Collected:** 11/9/04

**Report Date:** 12/6/04
**EIS Sample No:** 100265
**EIS Order No:** 041100093
**Date Received:** 11/10/04

| Parameter | Results | Units | RDL | MDL | Test Date | Analyst ID | Method |
|---|---|---|---|---|---|---|---|
| Digest Mercury | Complete | | | | 11/15/04 | E09 | 7471 |
| Digest ICP Metals | Complete | | | | 11/11/04 | E09 | 3050 B |
| Elutriate Preparation | Complete | | | | 11/10/04 | E21 | EPA/Corps |
| Nitrogen(Ammonia) | 1.4 | mg/L | 0.1 | 0.05 | 11/19/04 | E03 | 350.1 |
| Solids,Total | 39.1 | % | 0.1 | 0.1 | 11/12/04 | E25 | 160.3 |
| **METALS** | | | | | | | |
| Arsenic,Total | <10 | mg/kg(wet) | 10 | 10 | 11/12/04 | E09 | 6010 |
| Barium,Total | 31.6 | mg/kg(wet) | 1 | 1 | 11/12/04 | E09 | 6010 |
| Cadmium,Total | <1 | mg/kg(wet) | 1 | 1 | 11/12/04 | E09 | 6010 |
| Chromium,Total | 4.7 | mg/kg(wet) | 2 | 2 | 11/12/04 | E09 | 6010 |
| Copper,Total | 5.0 | mg/kg(wet) | 1 | 1 | 11/12/04 | E09 | 6010 |
| Lead,Total | 6.1 | mg/kg(wet) | 5 | 5 | 11/12/04 | E09 | 6010 |
| Mercury,Total | <0.1 | mg/kg(wet) | 0.1 | 0.2 | 11/16/04 | E09 | 7471 |
| Nickel,Total | <4 | mg/kg(wet) | 4 | 4 | 11/12/04 | E09 | 6010 |
| Selenium,Total | <10 | mg/kg(wet) | 10 | 10 | 11/12/04 | E09 | 6010 |
| Silver,Total | <1 | mg/kg(wet) | 1 | 1 | 11/12/04 | E09 | 6010 |
| Zinc,Total | 7.5 | mg/kg(wet) | 1 | 1 | 11/12/04 | E09 | 6010 |

# APPENDIX D

# LANDOWNER AGREEMENTS

JFNew
From Native Seed to Ecological Solutions

708 Roosevelt Road
Walkerton, Indiana 46574
Phone: 574-586-3400 ext. 307
Fax: 574-586-3446

John B. Richardson
Senior Project Manager
email: jrichardson@jfnew.com

Corporate Office:
Walkerton, Indiana

Crete, Illinois

Indianapolis, Indiana

Grand Haven, Michigan

Cincinnati, Ohio

Madison, Wisconsin

Native Plant Nursery:
Walkerton, Indiana

**www.jfnew.com**

September 6, 2005

LeMar Farms, Inc.
C/o Leroy Bohr
4999 N. State Road 25
Rochester, IN 46975

RE: Jim Hill farm

Dear Mr. Bohr:

As per our telephone conversation, you have agreed to allow the Lake Manitou Association to construct a sediment disposal basin on the Jim Hill property before harvesting the soybean crop. The lake association has agreed to reimburse you for the value of any crops lost or inaccessible as a result of the basin construction.

The reimbursement will be payable directly to LeMar Farms, Inc. from the Lake Manitou Association based on the acreage destroyed or inaccessible by the construction this month. JFNew will determine the acreage lost or inaccessible immediately following construction of the basin next week and provide you with a map showing that acreage. If you dispute the acreage lost or inaccessible please call me and we will come to an agreement. The value of the soybeans will be based on the market value of beans on the last day of September this year and your average crop yield from that parcel over the last three years. You may send an invoice directly to:

Lake Manitou Association
C/o Orv Huffman
1618 Bessmore Park Road
Rochester, IN 46975

Work is scheduled to begin on the property with staking of the basin this Saturday and excavation work beginning Monday September 12. Thank you for your cooperation. Please call me if you have any questions or concerns.

Sincerely,

John B. Richardson
Project Manager, JFNew

c. Orv Huffman
J. Hill

JFNew
From Native Seed to Ecological Solutions

708 Roosevelt Road
Walkerton, Indiana 46574
Phone: 574-586-3400 ext. 307
Fax: 574-586-3446

John B. Richardson
Senior Project Manager
email: jrichardson@jfnew.com

Corporate Office:
Walkerton, Indiana

Crete, Illinois

Indianapolis, Indiana

Grand Haven, Michigan

Cincinnati, Ohio

Madison, Wisconsin

Native Plant Nursery:
Walkerton, Indiana

www.jfnew.com

September 15, 2005

Jasper Dulin
P.O. Box 908
Rochester, IN 46975

RE: Lake Manitou Dredging project

Dear Mr. Dulin:

The Lake Manitou Association is undertaking a dredging project on several areas within lake Manitou. Two of the areas are located at the north end of the lake and require bringing the dredge spoils underneath State Road 14 in the area between State Road 25 and the Sav-A-Lot grocery store. Your vacant lot immediately across from the Sav-A-Lot store is an ideal location from which to make the necessary boring under the highway to carry the dredge spoil pipe.

The Association is in the process of contracting with Direct Line Communications of Granger, Indiana. Direct Line Communications has proposed to acquire necessary state permits and drill a 12-inch diameter continuous thick-walled poly-pipe from the vacant lot going under State Road 14 to the Sav-A-Lot detention basin. The pipe will have an open end within the riprap slope of your parking area and end on the slope in the detention area.

The 12-inch pipe will serve as a conduit for an eight-inch diameter, thick-walled poly-pipe, containing dredge spoils. The dredge spoil pipeline will come from the lake through the 12-inch line, turn east along state Road 14 and end up in a basin on airport property north and east of the existing pump station. The period of dredging will be from the first week of October through the end of October. Once the dredging is complete, the line will be capped on each end and concealed from view.

Please sign below, acknowledging your willingness to allow the temporary use of your property at the above location for completing the work described. All contractors having access to the site will be required to have liability insurance.

Thank you,

John B. Richardson

Jasper Dulin 9-16-05 Date

c. Orv Huffman, Lake Manitou Association

August 25, 2006

Kern Family Farms, LLC
C/O Shirley Needham
PO Box 401
Rochester, IN

RE: Lake Manitou Dredging project

Dear Ms Needham:

The Lake Manitou Association is undertaking a dredging project on several areas within Lake Manitou. One of these areas is located at the south end of the lake in the vicinity of your property located northwest of the intersection of 100 S and 400 E (Bessmore Park Road) in Fulton County, Indiana. The Lake Manitou Association desires the temporary use of approximately 20-30 acres of the tilled agricultural ground on the parcel for the placement of dredge spoils between October 2006 and March 2007.

The lake bottom dredging of approximately three acres at the south end of the lake near the rain creek outlet is proposed for October and November of 2006. The spoils slurry would be pumped to the property through 8-10 inch diameter HDPE pipe. The slurry is 80-90 percent water. Approximately 10-12,000 cubic yards of sediment may be pumped onto the property and evenly distributed across the field. Berms up to three feet in height may be constructed parallel to the road in the lower elevations in order to keep the spoils slurry on the property. The slurry is expected to be completely dry by late March of 2007 and will be incorporated into the existing soil by chisel plowing and tilling. Any berms constructed shall also be leveled. The field shall be made ready for cropping by April 15, 2007. If for some reason the field is not ready for planting in 2007 then the Lake Manitou Association will pay a fee to the ~~Kern Family~~ Showley Farms/Sec equal to the average yield output from the last 5 years.

The Lake Manitou Association is responsible for all costs associated with the dredging, basin site preparation, earthwork, and incorporation of the slurry into the field. Please sign below acknowledging your willingness to allow the temporary use of your property at the above location and as shown on the attachment for completing the work described. All contractors having access to the site will be required to have liability insurance.

Thank you,
John Richardson

Shirley Needham for: Kern Family Farms, LLC

Date: 8-28-06

October 17, 2005

JFNew
Native Seed to Ecological Solutions
3 Roosevelt Road
erton, Indiana 46574
574-586-3400 ext. 307
x: 574-586-3446

hn B. Richardson
or Project Manager
ichardson@jfnew.com

porate Office
kerton, Indiana

e, Illinois

anapolis, Indiana

Arbor, Michigan

nd Haven, Michigan

cinnati, Ohio

dison, Wisconsin

ive Plant Nursery
lkerton, Indiana

ww.jfnew.com

William Rhodes
Indiana Supermarkets
3501 Edison Road
South Bend, IN 66115

RE: Lake Manitou Dredging project

Dear Mr. Rhodes:

The Lake Manitou Association is undertaking a dredging project on several areas within lake Manitou. Two of the areas are located at the north end of the lake and require that we bring the dredge spoils underneath State Road 14 in the vicinity of the Sav-A-Lot grocery store. This letter is seeking your permission to utilize the cornfield east of your store for the temporary dredge spoils basin.

The attached aerial figure shows the proposed location of the spoils basin as we discussed. Figure 2 shows details of how the basin would be constructed. When the spoils dry next spring, we would level the entire area and make it ready for farming again in May 2006. We would utilize the entire farm field to level the spoils, which should result in an approximate 6-inch increase in grade throughout the field. I will specify in the construction documents that grade be sloped toward the detention area north of your store. All contractors having access to the site will be required to have liability insurance.

We are offering $3,000 for the use of this ground from late October 2005 to the end of April 2006. If for some reason, the spoils do not dry in time for leveling and planting next May, we are offering an additional $3,000 for rent/lease during the summer of 2006. The detention basin to the north of the store will be restored to its existing condition. Restoration of the detention area will include excavation of any visible sediment in the basin and planting with a combination of annual rye, perennial rye, and fescue.

Please sign below acknowledging your willingness to allow the temporary use of your property, at the stated fee, and at the above location for completing the work described.

Thank you,

John B. Richardson

William Rhodes

Date 10/19/05

c. Orv Huffman, Lake Manitou Association

## MEMORANDUM OF AGREEMENT

**SUBJECT:** Access to design, construct, and level a temporary sediment disposal basin

**PARTIES:** James. J. Hill - (THE OWNER)
Lake Manitou Association - (THE ASSOCIATION)

**AGREEMENT:**

THE ASSOCIATION is a not-for-profit Indiana Corporation dedicated to improving the water quality of Lake Manitou, located in Fulton County, Indiana. THE ASSOCIATION wishes to construct and use a temporary sediment disposal basin on private property as part of its efforts to improve the water quality of Lake Manitou.

THE OWNER, does hereby enter in this agreement for the temporary use of real property located in Rochester Township, Fulton County, Indiana in the East ½ NE 1/4 of Section 14, Township 30 North, Range 3 East and more particularly described on the attached Exhibit "A" and does grant to THE ASSOCIATION access to said property for survey, design, construction, inspection, maintenance, and leveling of a temporary sediment disposal basin. THE OWNER hereby represents and warranties that they are owner of the property covered by this agreement and that they have the right to enter into this agreement and to bind themselves and their heirs, successors, and assigns. Therefore, THE OWNER grants THE ASSOCIATION and its' agents access to property described below under the following terms and conditions.

The term shall commence on the day this agreement is signed by the parties hereto and shall continue for a term of two years (2). It is further agreed that this agreement shall be renewable by either party upon mutual agreement Sixty Days (60) prior to the expiration of said agreement. Throughout the term of the agreement, THE ASSOCIATION shall carry a policy of public liability insurance covering all of its activities on the property. All contractors working on this property that are employed by THE ASSOCIATION shall also carry liability insurance. At the request of THE OWNER, THE ASSOCIATION shall provide a certificate or other evidence that such insurance is in effect.

THE ASSOCIATION shall restore all road surfaces owned by THE OWNER to their original condition if said surfaces are damaged by equipment and/or machinery used by THE ASSOCIATION and its agents during ingress and egress from the property. Before final completion of the work on the property, THE ASSOCIATION and its agents shall grade the temporary spoils basin to contours suitable for farming (less than 5% slope) or to satisfaction of THE OWNER whichever is less. As requested by THE OWNER, the existing ponds will be enlarged during this construction process and protected from erosion during the use of the property. THE ASSOCIATION will not be responsible for the shape or depth of the ponds.

THE ASSOCIATION shall be responsible for all expenses incurred in the survey and engineering, construction, inspections, maintenance, erosion control, leveling, and final grading of the temporary sediment disposal basin. Since the property is an active agricultural field, THE

ASSOCIATION, shall complete all work after crops have been harvested or agree to purchase said crops from the their respective owner. THE OWNER, or their agent, is responsible for planting crops the following season after the disposal basin has been leveled. No lien shall be attached to THE OWNER's property as a result of this agreement or the proposed work. Any voluntary recording of this agreement by THE ASSOCIATION is intended solely for the purpose of giving proper notice as provided under IC 32-8-3-1 et seq.; and no lien whatsoever is created against the real estate as the result of the execution or recordation of this Agreement.

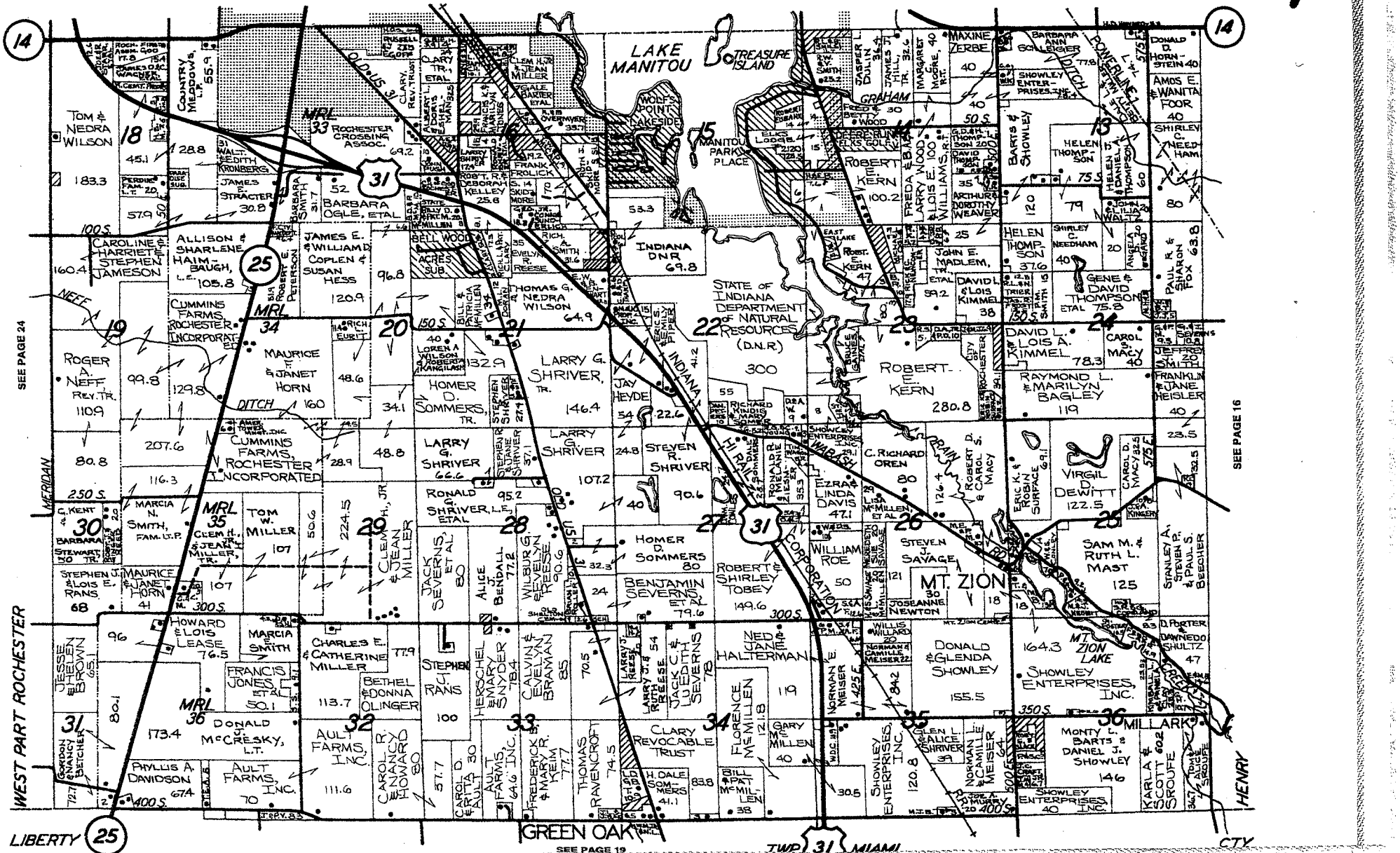
IN WITNESS WHEREOF, James Hill, THE OWNER(s), and Orv Huffman, current Watershed Coordinator of THE ASSOCIATION, have caused this Agreement to be executed with the following signatures and on the inscribed dates.

"THE ASSOCIATION" – Orv Huffman _____ Date

THE OWNER – James Hill _____ Date

Witness: _____ Date

# Exhibit 1: JAMES Hill Property



# APPENDIX E

# PROJECT PERMITS

**STATE OF INDIANA**
**DEPARTMENT OF NATURAL RESOURCES**

MAILED MAY 31 2005

# CERTIFICATE OF APPROVAL
# PUBLIC FRESHWATER LAKE

**APPLICATION #** : PL-20046

**LAKE** : Lake Manitou

**APPLICANT** : Lake Manitou Association
Orv Huffman
1618 Bessmore Park Road
Rochester, IN 46975-9095

**AGENT** : Dredging Technologies, Inc
Jeff Krevda
4896 East 200 South
Marion, IN 46953-9135

**AUTHORITY** : IC 14-26-2 with 312 IAC 11

**DESCRIPTION** : Accumulated sediment will be hydraulically dredged in five distinct areas as follows: Area 1, two surface acres of sediment averaging 2.5' thick and totaling 8000 cubic yards; Area 2, one surface acre of sediment averaging 3' thick and totaling 5000 cubic yards; Area 3, six surface acres averaging 1.5' thick and totaling 14500 cubic yards; Area 4, four surface acres averaging 2.5' thick and totaling 16000 cubic yards; and Area 5, two surface acres averaging 2.5' thick and totaling 8000 cubic yards. The excavated material will be transported to two upland sediment storage basins where it will be dewatered before being spread on the adjacent landscape or before being transported to an offsite disposal area. Return water will be filtered through a rock and gravel spillway and then a turbidity curtain as it is returned to the lake or stream. Details of the project are contained in information and plans received at the Division of Water on January 10, 2005, and May 23, 2005.

**LOCATION** : DOWNSTREAM: Five different areas along the eastern and western shoreline near Rochester, Rochester Township, Fulton County
NE¼, NW¼, SE¼, Section 9, T 30N, R 3E, Rochester Quadrangle
UTM Coordinates: Downstream 4545515 North, 567670 East
UPSTREAM: SE¼, SE¼, SE¼, Section 15, T 30N, R 3E
UTM Coordinates: Upstream 4543303 North, 569835 East

**APPROVED BY** :

James J. Hebenstreit, P.E., Assistant Director
Division of Water

**APPROVED ON** : May 31, 2005

Attachments: Notice Of Right To Administrative Review
General Conditions
Special Conditions
Service List

# STATE OF INDIANA
# DEPARTMENT OF NATURAL RESOURCES

## SPECIAL CONDITIONS

### APPLICATION #: PL- 20046

**PERMIT VALIDITY** : This permit is valid for 24 months from the "Approved On" date shown on the first page. If work has not been completed by May 31, 2007 the permit will become void and a new permit will be required in order to continue work on the project.

This permit becomes effective 18 days after the "MAILED" date shown on the first page. If both a petition for review and a petition for a stay of effectiveness are filed before this permit becomes effective, any part of the permit that is within the scope of the petition for stay is stayed for an additional 15 days.

**CONFORMANCE** : Other than those measures necessary to satisfy the "General Conditions" and "Special Conditions", the project must conform to the information received by the Department of Natural Resources on: January 10, 2005 and May 23, 2005. Any deviation from the information must receive the prior written approval of the Department.

| Number | Special Condition |
|---|---|
| ( 1) | minimize the movement of resuspended bottom sediment from the immediate project area |
| ( 2) | if sediment is removed hydraulically and transported to an upland dewatering basin, adequate slurry detention time and sediment removal measures must be used to ensure that the water returned to the lake is not carrying excessive sediment back to the lake |
| ( 3) | revegetate all bare and disturbed areas landward of the shoreline with a mixture of grasses (excluding all varieties of tall fescue) and legumes as soon as possible upon completion |
| ( 4) | all excavated material must be properly spread landward of the shoreline on the property or completely removed from the project site such that erosion and off-site sedimentation of the material is prevented |
| ( 5) | conduct the project as outlined in the removal plan; any variation must be mutually agreed to by the Lake Manitou Association (LMA), the Lake and River Enhancement (LARE) Coordinator, the contractor, and the Division of Fish and Wildlife (DFW) |
| ( 6) | the LMA, or their authorized representative, should notify the LARE Coordinator and the DFW prior to commencing dredging at each of the five areas |
| ( 7) | dredging may not occur closer than 10 feet from the legal shoreline |
| ( 8) | beds of emergent vegetation greater than 625 square feet must be avoided, except on Graham Creek (Area 1); in Area 1, dredging may occur to within 10 feet of the legal shoreline anywhere west of the bridge |
| ( 9) | do not dredge from April 15 through June 30 without the prior written approval of the Division of Fish and Wildlife |

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
*We make Indiana a cleaner, healthier place to live.*

*Mitchell E. Daniels, Jr.*
Governor

*Thomas W. Easterly*
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
(800) 451-6027
www.IN.gov/idem

**VIA CERTIFIED MAIL** 7002 0510 0004 2581 5035 February 16, 2005

Mr. Orv Huffman
Lake Manitou Association
1618 Bessmore Park Rd.
Rochester, IN 46975

Dear Mr. Huffman:

Re: Section 401 Water Quality Certification
Project: Lake Manitou Dredging
IDEM No.: 2005-006-25-EME-A
IDNR No: PL-20046
COE No.: 200500073-trs
County: Fulton

Office of Water Quality staff has reviewed your application for an Individual Section 401 Water Quality Certification dated December 16, 2004, and received January 10, 2005, as well as modifications to the application dated January 26, 2005, and received January 31, 2005. According to your January 26, 2005 letter and modified application, you propose to hydraulically dredge approximately 5,500 cubic yards of sediment from the mouth of Graham Ditch (identified in the original application as Priority Site #1). The sediment will be pumped to a contained upland disposal site in an adjacent farm field, and return water will be filtered by a rock/gravel spillway (placed above the Ordinary High Water Mark) and a turbidity curtain. Spoils will be spread in the farm field after they have dried. The project is located along the eastern edge of Lake Manitou where it meets Graham Ditch (Sections 14 and 15, Township 30 North, Range 3 East) near Rochester, Fulton County.

It is the judgment of this office that the aforementioned project qualifies for the U.S. Army Corps of Engineers' (Corps) Nationwide Permit No. 16 (authorized by Corps' correspondence dated February 3, 2005) and meets the terms of all Section 401 Water Quality Certification conditions. Information on the Regional General Permit and Nationwide Permits can be found at:

http://www.in.gov/idem/water/planbr/401/nwp02.html (NWP)

Water Quality Certification is, therefore, considered granted for this project. You will receive no further correspondence from this office regarding this project.

If you have additional questions or do not have access to the Internet, please contact Ms. Liz Elverson, Project Manager, of my staff at 317-233-2482, or you may contact the Office of Water Quality through the IDEM Environmental Helpline (1-800-451-6027).

Sincerely,

Martha Clark Mettler

Martha Clark Mettler, Chief
Watershed Planning Branch
Office of Water Quality

cc: Tim Smith, USACE-Indianapolis Field Office
R. Scott, IDNR-Division of Water
John Richardson, JF New & Associates-Walkerton

**DEPARTMENT OF THE ARMY**
U.S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS
INDIANAPOLIS FIELD OFFICE
9799 BILLINGS ROAD
INDIANAPOLIS, INDIANA 46216-1055
FAX: (317) 532-4228
http://www.lrl.usace.army.mil

February 3, 2005

Operations Division
Regulatory Branch (North)
ID No. 200500073-trs

Mr. Orv Huffman
Lake Manitou Association
1618 Bessmore Park Road
Rochester, Indiana 46975

Dear Mr. Huffman:

This is in regard to the application received January 10, 2005, which was submitted on your behalf by J.F. New & Associates, Inc., requesting authorization to hydraulically dredge approximately 5,500 cubic yards of material from Lake Manitou in order to improve recreation. The proposed site is located at the mouth of Graham Ditch on the east side of the lake within the northeast quarter of Section 15, Township 30 North, Range 3 East in Rochester, Fulton County, Indiana. The dredged material will be disposed of in an upland agricultural field adjacent to the site. We have reviewed the submitted data to determine whether a Department of the Army (DA) permit will be required under the provisions of Section 404 of the Clean Water Act.

Based upon the submitted data, your proposal is authorized under the provisions of Nationwide General Permit 33 CFR 330 (16), Return Water from Upland Contained Disposal Areas, as published in the Federal Register, January 15, 2002. We do require compliance with the enclosed Nationwide Permit General Conditions, the terms of the Nationwide permit, and the Indiana Department of Environmental Management (IDEM) Section 401 Water Quality Certification dated July 6, 2004 (copies enclosed).

You may proceed with the work without further contact or verification from us. The enclosed Compliance Certification should be signed and returned when the project is completed. This decision is valid for 2 years from the date of this letter. If your project is not completed within this 2-year period, or if your plans change, you should contact us for another determination.

If you have any questions, please contact me by writing to the above address, ATTN: CELRL-OP-FN, or by calling (317) 532-4227. Any correspondence on this matter should refer to our ID No. 200500073-trs.

Sincerely,

ORIGINAL SIGNED

Tim Smith
Project Manager
Regulatory Branch

Enclosures

Copy furnished:
Ms. Liz Elverson, IDEM
Mr. John Richardson, JF New

No. 16, Return Water from
Upland Contained Disposal Areas
(NWP Final Notice, 67 FR 2081)

Return water from an upland, contained dredged material disposal area. The dredging itself may require a section 404 permit (33 CFR 323.2(d), but will require a Section 10 permit if located in navigable waters of the United States. The return water from a contained disposal area is administratively defined as a discharge of dredged material by 33 CFR 323.2(d) even though the disposal itself occurs on the upland and thus does not require a Section 404 permit. This NWP satisfies the technical requirement for a Section 404 permit for the return water where the quality of the return water is controlled by the state through the Section 401 certification procedures. (Section 404)

**Compliance Certification:**

**Permit Number: 200500073-trs**

**Name of Permittee: Mr. Orv Huffman**

**Date of Issuance: February 1, 2005**

Upon completion of the activity authorized by this permit and any mitigation required by this permit, sign this certification and return it to the following address:

U.S. Army Corps of Engineers
Tim Smith
9799 Billings Road
Indianapolis, Indiana 46216

Please note that your permitted activity is subject to a compliance inspection by an U.S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the said permit, and required mitigation was completed in accordance with the permit conditions.

_____ _____

Signature of Permittee Date

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS
INDIANAPOLIS REGULATORY OFFICE
9799 BILLINGS ROAD
INDIANAPOLIS, INDIANA 46216-1055
http://www.lrl.usace.army.mil

October 13, 2006

Operations Division
Regulatory Branch (North)
ID No. LRL-2006-1409-trs

Mr. Orv Huffman
Lake Manitou Association
1618 Bessmore Park Road
Rochester, Indiana 46975

Dear Mr. Huffman:

This is in regard to your letter of September 7, 2006, concerning the Lake Manitou Dredging Project. The project will continue this year and an additional sediment disposal basin will be required. The basin is adjacent to the east of Manitou Lake within an agricultural field. More specifically, the basin is located in Section 15, Township 30 North, Range 3 East in Rochester, Fulton County, Indiana. We have reviewed the submitted data to determine whether a Department of the Army (DA) permit will be required under the provisions of Section 404 of the Clean Water Act.

Based upon the submitted data, your proposal is authorized under the provisions of Nationwide General Permit 33 CFR 330 (16), Return Water from Upland Contained Disposal Areas, as published in the Federal Register, January 15, 2002. We do require compliance with the enclosed Nationwide Permit General Conditions, the terms of the Nationwide permit, and the Indiana Department of Environmental Management (IDEM) Section 401 Water Quality Certification dated July 6, 2004 (copies enclosed).

This verification is valid until the NWP is modified, reissued, or revoked. All of the existing NWPs are scheduled to be modified, reissued, or revoked prior to March 18, 2007. It is incumbent upon you to remain informed of the changes to the NWPs. We will issue a public notice when the NWPs are reissued. Furthermore, if you commence or are under contract to commence this activity before the date that the relevant NWP is modified or revoked, you will have twelve (12) months from the date of the modification or revocation of the NWP to complete the activity under the present terms and conditions of this NWP.

The enclosed Compliance Certification should be signed and returned when the project is completed. Please note that this NWP authorization does not obviate the need to obtain permits from other Federal, state, and local agencies that may be required.

If you have any questions concerning this matter, please contact me by writing to the above address or by calling 317-532-4227. Any correspondence on this matter should reference our assigned Identification Number LRL-2006-1409-trs.

Sincerely,

Tim Smith
Project Manager
Indianapolis Regulatory Office

Enclosures

Copy Furnished:

IDEM
JF New